

1. A refractory comprising:
  - a. 20-80 wt. % of a metal phosphate;
  - b. 15-60 wt. % of a metal oxide;
  - c. 2-20 wt. % of tricalcium phosphate.
2. A refractory as described in claim 1, wherein the metal phosphate is an alkali metal or alkali metal earth metal phosphate.
3. The refractory as recited in claim 1 further comprising a component selected from the group consisting of calcium silicate and silicon dioxide.
4. The refractory as recited in claim 1 further comprising calcium silicate, wherein the calcium silicate is present at between 0.5-15 wt. % of the refractory composition.
5. The refractory as recited in claim 1 further comprising silicon dioxide, wherein the silicon dioxide is present at between 0.5-15 wt. % of the refractory composition.
6. The refractory as recited in claim 1 wherein the refractory is preferably between 40 and 65 wt. % metal phosphate.
7. The refractory as recited in claim 1 wherein the refractory is preferably between 25 and 50 wt. % metal oxide.
8. The refractory as recited in claim 1 wherein the refractory is preferably between 4 and 15 wt. % tricalcium phosphate.
9. The refractory as recited in claim 1 wherein the wt. %ratio between metal phosphate and metal oxide is between 2:0.5 and 1:1.
10. The refractory as recited in claim 1 wherein the refractory composition is mixed with up to 20 wt. % water to form an activated slurry.
11. The refractory as recited in claim 1 further comprising a setting retarder.
12. A refractory comprising:

- a. 20-80 wt. % of a potassium phosphate;
  - b. 15-60 wt. % of a MgO;
  - c. 2-20 wt. % of tricalcium phosphate.
13. The refractory as recited in claim 1 wherein the refractory is preferably between 40 and 65 wt. % potassium phosphate.
  14. The refractory as recited in claim 1 wherein the refractory is preferably between 25 and 50 wt. % MgO.
  15. The refractory as recited in claim 1 wherein the refractory is preferably between 4 and 15 wt. % tricalcium phosphate.
  16. The refractory as recited in claim 1 wherein the refractory composition is mixed with up to 20 wt. % water to form an activated slurry.
  17. The refractory as described in claim 1, wherein the metal phosphate is mono potassium phosphate.
  18. A refractory comprising:
    - a. 20-80 wt. % of a metal phosphate;
    - b. 15-60 wt. % of a metal hydroxide
    - c. 2-20 wt. % of tricalcium phosphate.
  19. The refractory as described in claim 18, wherein the metal phosphate is mono potassium phosphate.
  20. The refractory as describe in claim 18, wherein the metal hydroxide is selected from a group consisting of:  $\text{Al(OH)}_3$  and  $\text{Zr(OH)}_4$ .

